

# **Organizational Analysis Primer: A Synthesis of CNA's Work**

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# REPORT DOCUMENTATION PAGE

Form Approved  
OMB No. 0704-0188

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1. REPORT DATE (DD-MM-YYYY) 08-2007		2. REPORT TYPE Final		3. DATES COVERED (From - To)	
4. TITLE AND SUBTITLE  Organizational Analysis Primer: A Synthesis of CNA's Work				5a. CONTRACT NUMBER N00014-05-D-0500	
				5b. GRANT NUMBER	
				5c. PROGRAM ELEMENT NUMBER 0605154N	
6. AUTHOR(S) Randazzo-Matsel, Annemarie				5d. PROJECT NUMBER R0148	
				5e. TASK NUMBER	
				5f. WORK UNIT NUMBER	
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES)  Center for Naval Analyses 4825 Mark Center Drive Alexandria, VA 22311-1850				8. PERFORMING ORGANIZATION REPORT NUMBER  D0016576.A1	
9. SPONSORING / MONITORING AGENCY NAME(S) AND ADDRESS(ES) Chief of Naval Operations 2000 Navy Pentagon Washington D.C. 20350-2000				10. SPONSOR/MONITOR'S ACRONYM(S)	
				11. SPONSOR/MONITOR'S REPORT NUMBER(S)	
12. DISTRIBUTION / AVAILABILITY STATEMENT  Distribution unlimited					
13. SUPPLEMENTARY NOTES					
14. ABSTRACT  The Synthesis of Marine Corps Analysis study is a CNA-Initiated study designed to synthesize our approaches and findings in three key areas of CNA analysis: operational assessment, organizational analysis, and real-world operations. This is the second of three reports, and focuses on organizational analysis. The goal of organizational analysis is to determine those structures that best meet the demands and requirements of and for a specific organization. CNA's approach to organizational analysis focuses on building an analytical foundation that can be used to determine whether a particular organizational structure is better-suited to meet the demands, requirements, and resources of an organization. CNA's predominant approach is a functions-based approach that focuses on "form following function" and enables an organization to measure itself against specific responsibilities and objectives (what is required). It is not meant to represent a static approach. In more complex cases, we incorporate other approaches including process-analysis. Further, we expect that we will continue to refine and advance our approaches to these types of analysis					
15. SUBJECT TERMS Organizational Analysis, Componency, Functional Approach, Process, Zero-Based					
16. SECURITY CLASSIFICATION OF:			17. LIMITATION OF ABSTRACT  SAR	18. NUMBER OF PAGES  54	19a. NAME OF RESPONSIBLE PERSON Knowledge Center/Rhea Stone
a. REPORT U	b. ABSTRACT U	c. THIS PAGE U			19b. TELEPHONE NUMBER (include area code) 703-824-2110

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## Summary

The Synthesis of Marine Corps Analysis study is a CNA-initiated study designed to address a perceived disconnect in three key areas of CNA analysis: operational assessment, organizational analysis, and real-world operations. As an organization, CNA has executed numerous studies analyzing various issues for the Navy and Marine Corps, to include less formal analyses conducted by CNA field representatives in support of their commands. For several reasons, most of our efforts in these areas have been done separately. As a result, there is no overarching document that synthesizes the body of work in each area, including both the methods and substance. This study intends to remedy this, at least in part, by linking these separate CNA efforts and identifying key themes, methodologies/approaches, and pervasive issues. This is the second of three reports, and focuses on organizational analysis.

## Analysis of military organizations

Organizational analysis typically focuses on the structure and manning of organizations. Its goal is to determine those organizational structures that best meet the demands of and requirements for a specific organization. Like businesses and industries, military organizations strive to achieve the most with the fewest resources. That is, they seek to be both effective and efficient. However, military organizations face three very specific obstacles that businesses and industries do not:

1. They may need to be organized to meet the requirements and challenges of three environments: peacetime, wartime, and the transition between the two.
2. They may serve more than one role.

3. They may need to use an organizational structure that meets current operational environments as well as potential future operations, which may require considerable organizational flexibility.

## **Our approach**

CNA's approach to organizational analysis focuses on building an analytical foundation that can be used to determine which organizational structure is better suited to meet the demands, requirements, and resources of an organization. CNA's predominant approach to such analysis is functions based. By using an approach that focuses on "form following function," an organization can measure itself against specific responsibilities and objectives (what is required). Once we know what the organization must do, we can design (or re-design) it to do just that. Our basic functional approach has four steps [1]:

1. Identify what an organization and its personnel are required to do.
2. Determine if there are gaps between these requirements and the organization's actual achievements.
3. Design alternative organizational structures.
4. Analyze the alternatives' costs, benefits, and risks.

This approach is a basic building block, which we refine and add to in order to address the issues unique to a specific organizational examination or study.

While this methodology may appear simple, good organizational analysis is anything but easy. To execute these steps well, a good analyst must be aware of difficulties and pitfalls common to such analysis. These include stakeholder bias and lack of data in step one, subjectivity in determining decision rules in step two, the endless number of possible structures that can be considered in step three, and the analyst's need to rely on an understanding of the organization and his or her intuition in step four.

While the functions-based approach is by far the predominant one used by CNA, in more recent years we have continued to refine and

expand on it. Specifically, for several complex organizational analyses we have incorporated process analysis as an extension of the basic functional approach. This approach uses processes and products, which are derived from the organization's functions, as the organizing principle. We find process-based analysis particularly useful when considering organizations that may be geographically dispersed or that are open to the possibility of using a non-Napoleonic structure [2].

## Challenges of organizational analysis

Analyzing organizations is not simple. The analysis has subjective components: it tends to lack hard data or facts, and it is heavily affected by an analyst's intuition and understanding of the organization. Even those organizational analyses based on solid analytical frameworks and reproducible critical thought processes are fraught with challenges and obstacles. The five most common are:

- Stakeholder bias
- Need for an analyst with a deep knowledge of the organization
- Need for analyst objectivity
- Lack of data (e.g., lists of functions rarely exist)
- No one right answer.

## Our goal

Despite its challenges and subjectivity, organizational analysis seeks to determine which structures can get the most done with the fewest resources. Balancing effectiveness and efficiency is a large part of the analysis. In a world of limited resources, it is unrealistic to believe that we can design and staff organizations that will be able to do every task or function at the highest level 100 percent of the time. The cost in both money and other resources (e.g., personnel) would likely be prohibitive. Rather, our goal is to develop potential structures that our analysis shows best meet an organization's needs, and to present those alternatives along with their benefits and shortfalls in a way that enables a sponsor to make an informed and objective comparison between them.

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## Introduction

As an organization, CNA has executed numerous studies analyzing various issues for the Navy and Marine Corps. These have included less-formal analyses conducted by CNA field representatives in support of their commands. Over the years, many of these analyses have focused on three critical areas: operational assessment, organizational analysis, and reconstruction of real-world operations. For several reasons—including the nature of the field representative program, the requirements of various commands, and the disconnect between field work and headquarters-based analyses—most of our efforts in these areas have been done separately and little effort has been made to synthesize their results. In short, there is no overarching document that synthesizes the body of work in each area, including both methods and substance.

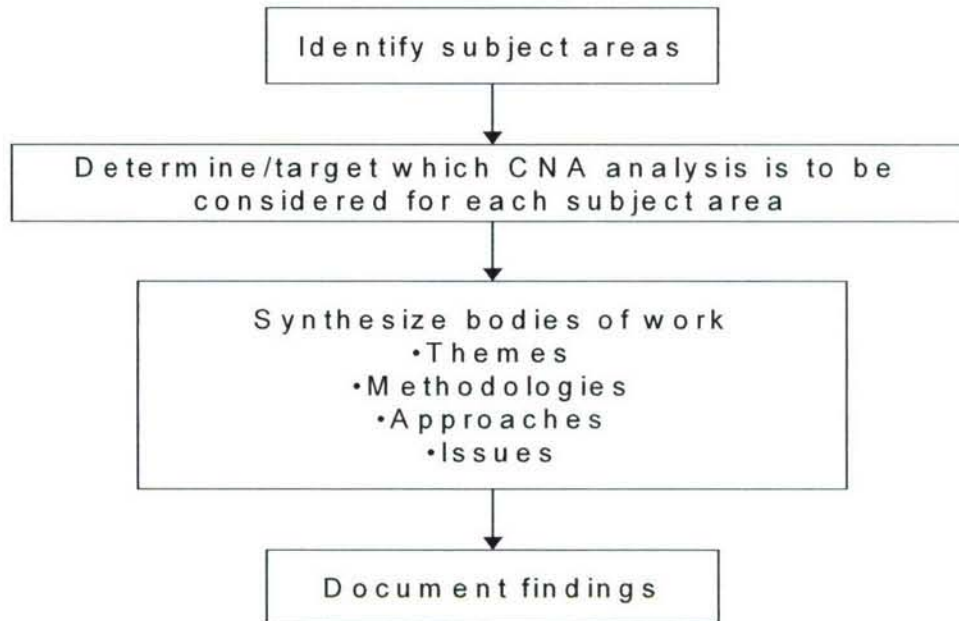
In this CNA-initiated study, we identify key themes, methodologies, and issues in each of the three areas of analysis. Our intended audience comprises the Marine Corps, CNA research analysts, and other current and potential sponsors. This report discusses our work in the area of organizational analysis.

## Methodology

Our overall approach is to take a critical look at the work (especially the more recent analyses) we have done for the Navy and Marine Corps in each of the three identified key areas. Figure 1 summarizes the four-step process we used to execute our analysis plan. For each of these areas, we will present the “bottom line” results of our efforts. We have designed the study to provide for separate documentation for each key area. Our previous report, *Operational Assessment Primer: A Synthesis of CNA’s Work for the Marine Corps*, was published in October 2006 [3]. A separate report focusing on CNA’s participation in

real-world operations will be completed in 2008. We may expand this study to include examinations of other key areas as well.

Figure 1. Four-step process



For this specific task regarding organizational analysis, we focused on the work of analysts at CNA headquarters in Alexandria but we also included formal, published analyses done by field representatives. The findings presented here are based on a review of our work in the area of competency as well as traditional organizational examinations.

## Organization

The remainder of this paper is presented in four sections. In the first section, we describe organizational analysis in general terms, including a brief description of CNA's work in this area. In the second section, we present the approaches and methodologies that CNA uses to analyze organizational structure and manning, and to determine

alternative organizational constructs that might better meet the Navy's and Marine Corps' requirements. In the third section, we discuss the key challenges and obstacles to organizational analysis. Finally, in the last section, we summarize our findings and highlight a few key considerations.

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## Background

In this section, we discuss, in general terms, what we mean by the term “organizational analysis,” and why organizations or parent organizations conduct reviews or assessments of themselves or their subordinate organizations. We also discuss considerations that are specific to analyzing military organizations, as opposed to regular industry or business, and cite examples of CNA studies addressing these specific challenges. Finally, we briefly discuss CNA’s recent work (1993-present) in the area of organizational analysis, to show how we continue to address the persistent issues facing the Navy and Marine Corps (e.g., componency) while evolving to meet the demands of the new organizational challenges that confront them.

## Definition

For a range of reasons, including a desire to improve efficiency or effectiveness or to cut costs, parent organizations, or organizations themselves, might conduct an assessment of an organization’s performance and design. In some cases, assessments are formal, planned, systematic, and explicit (i.e., the organization is aware of the assessment). In other cases, they are unplanned and unannounced. Due to the nature of our work and the approaches and methodologies we employ, CNA typically takes part in the planned and advertised organizational reviews.

Organizational analysis typically focuses on the structure and manning of organizations. This includes examining what is required of the organization, its roles and functions, its division of labor, and its relationship with parent, subordinate, and adjacent organizations (or commands, if it is a military organization).

Well-done organizational assessments generally employ standard processes, such as reviewing the organization’s doctrine or charter to see what what an organization is supposed to do, and sending out

questionnaires to compare the organization's structure and actual achievements to what is expected of it and from it.

Analysts consider four basic elements when examining the structure of an organization. In terms of military organizations, these are:

1. The organization's (or department's) purpose (i.e., its required roles and functions)
2. The flow of information and work (including that of all geographic locations, for distributed organizations)
3. The culture of the organization
4. The organization's people (their selection, qualification, rank, and training).

## **Purpose and goal**

Whether someone is establishing a new organization or investigating a disconnect between what is required of an existing organization and what it is delivering, or how it is resourced, an analysis of organizational design can show how to maximize results (i.e., output) while optimizing resources (i.e., personnel and structure or "inputs"). An organization's structure can either enhance or hinder its efficiency and effectiveness (i.e., productivity). More specifically, the organization's chance of success can be profoundly affected by numerous aspects of its structure: how information flows and to whom; whether, and how many, parts of the work process are redundant; how clear and precise the reporting structure is; and whether and how new ideas and products are promoted.

Regardless of the specific reasons for wanting an organizational analysis, the ultimate goal is usually to achieve "organization operational excellence"—that is, the organization does what it needs to do in the most effective way and with the fewest resources (i.e., efficiently). This is true whether we are discussing a business/industry organization or a military organization.

## Obstacles to analyzing military organizations

There are various reasons why the Navy and Marine Corps ask CNA to conduct organizational reviews of their organizations. Typically, the Navy and Marine Corps are concerned with such issues as: how well an organization does what it is required to do; whether it is overmanned, undermanned, or right-sized; whether any of the work process or structure is redundant; and how suited its personnel are for the job (i.e., whether they have the appropriate rank and training). Compared to industries and businesses, military organizations face additional obstacles or factors that further complicate efforts to structure them:

1. Military organizations may need to be organized to meet the requirements and challenges of three environments: peacetime, wartime, and the transition between the two. For example, US Marine Forces North (MARFORNORTH) is simply a service component headquarters in peacetime, but it may be tasked to become a Joint Task Force (JTF) commander in the event of an attack on or direct threat to the continental United States (CONUS) [1].
2. Military organizations may serve more than one role. For example, US Navy Central Command (NAVCENT) acts as both the Navy component command for US Central Command (CENTCOM) and the numbered fleet commander (Fifth Fleet) for the US Navy [4].
3. Military organizations may need to use an organizational structure that meets current operational environments as well as potential future operations; thus, they may require considerable organizational flexibility. For example, the US Marine Forces Strategic Command (MARFORSTRAT) organization was developed and implemented at the same time that US Strategic Command (STRATCOM) is evolving to meet current and potential future threats [5-6].

## CNA's work

CNA has executed numerous studies analyzing organizational structures and their personnel. Beginning in the early 1990s, many of CNA's organizational studies focused on componency, which was a new concept for the US military and a post-war requirement. Specifically, the Navy and Marine Corps asked CNA to analyze what "organization" (both structure and manning) they should develop in order to best meet the requirement to maintain service representation at the geographic combatant commands (until 2001, these commands were called geographic commander-in-chiefs (CINCs)). To cite a few examples, between 1994 and 2001, CNA did studies analyzing the concept of a Marine Service Component Headquarters in general [7], the concept of Marine Service Componency in the European Command (EUCOM) [8], Marine Componency in the Pacific Command and Korea [9], and both Marine and Navy componency in CENTCOM [4, 10].

While the Navy and Marine Corps are still concerned with componency and the organizations that maintain it [1, 5, 6], they recently (since the late 1990s) have also asked CNA analysts to focus on more traditional organizational analysis. Such analyses have examined whether an organization is structured and manned in the best way to meet its operational mission and tasking [11-17]. In several of these studies, CNA has looked at reorganizing standing organizations that are being challenged by limited and waning resources or new roles.

In the next section, we discuss the approaches that CNA finds useful in conducting organizational analyses. We use the same (or a very similar) approach regardless of whether or not the analysis involves componency, and regardless of whether we are examining a standing organization or proposed new organization.

## Approaches/methodologies

When analyzing organizations, CNA's goal is to build an analytical foundation that can be used to determine whether a particular organizational structure (or structures) is better suited to meet the demands, requirements, and resources of an organization. This is often a challenging task because organizational analysis, by its very nature, is often less quantitative and more subjective than other types of analyses. As a result, an analyst must be creative in developing a framework that is based, as much as possible, on objective data and information, and that does not rely too heavily on potentially biased and emotional viewpoints of the organization's current or future stakeholders (e.g., personnel).

An organization can be structured by activities, products, processes, geography, or a combination of all four. In this section, we discuss the approaches and methodologies that CNA uses to:

- Determine how to balance these factors,
- Examine military organizations and structures, and
- Analyze alternative organizational structures.

As part of this discussion, we provide examples of the work that CNA analysts have done in this area. We begin with a discussion of the functional approach, which relies on the theory that "form follows function." It is the basic building block on which most of CNA's organizational analyses stand [1,2, 4-21]. Next, we discuss process analysis, which is in most cases an extension of the functional approach. We also address the role and impact of geography (i.e., distributed organizations) in this section.

## Functional approach

Functions are discrete activities that drive an organization's existence. By using an approach that focuses on "form following function," an organization can measure itself against specific responsibilities and objectives (what is required). Once we know what the organization must do, we can design (or re-design) it to do just that. We generally refer to this functions-based approach as the "functional approach", but sometimes refer to it as a "zero-based" or a "requirements-based" approach.

## Methodology

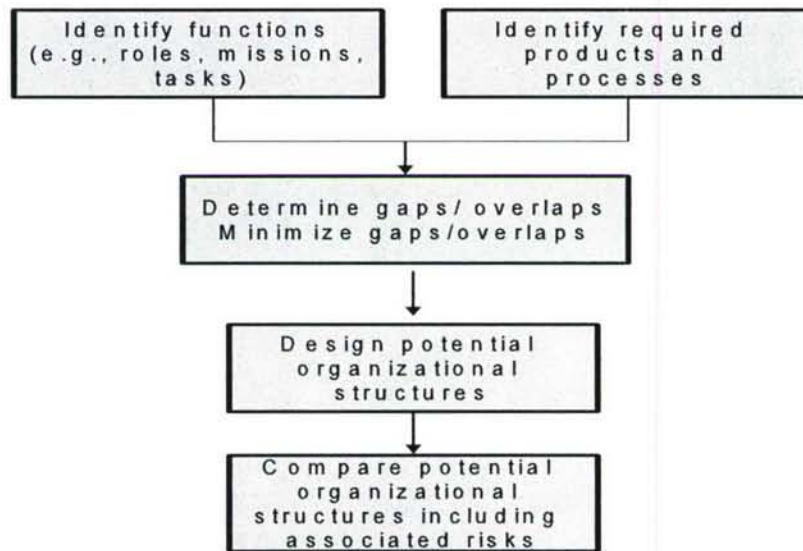
Figure 2 depicts our basic methodology. This approach has four steps<sup>1</sup>:

1. Identify what the organization and its personnel are required to do (i.e., its key roles, which are the culmination of its functions, products, and processes).
2. If analyzing an existing organization, determine whether there are gaps between these requirements and the organization's actual achievements, and whether any requirement is being met more than once. If designing a new organization, determine constructs that minimize gaps and overlaps.
3. Design alternative organizational structures and manning.
4. Analyze the alternatives' costs, benefits, and associated risks.

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1. Depending on the nature of the specific organization or question being analyzed, a step may be skipped or have sub-steps/ caveats.

Figure 2. Functional approach methodology<sup>a</sup>



a. Source: [1].

The functional approach rests on the theory that once the roles, missions, and tasks (i.e., functions) of an organization are clearly identified and vetted, appropriate organizational constructs (or courses of action) will be evident. An analyst can use the organization's ability to perform the required functions identified in step one against the trade-offs identified in step four as the basis for deciding which organizational structures are best suited to meet the Navy's/Marine Corps' and the specific organization's needs effectively and efficiently.

These steps may appear to be easy to execute. The difficulty is executing them in an objective and reproducible manner. As we discuss each of the steps in the following paragraphs, we highlight these difficulties and present some ways of compensating for or overcoming them.

## Identify functions, products and processes

The first step is to identify what an organization is required to do (i.e., its functions). Using the top-down approach, the obvious starting point is to examine the doctrine, which is the equivalent of a charter for business or industry. In the case of military organizations, it is important to review joint as well as service-specific doctrine. The two will likely overlap, but certain functions might be spelled out in only one or the other. Other good sources of information on an organization's functions are exercise and operational after-action reports and lessons-learned databases [10]. Such reports detail, often very specifically, what the organization and its personnel were asked to do, what they did and did not do, and, sometimes the reason for any disconnect between the two. Disparities might be due to an organization's having too few personnel or not having the "right" personnel to execute the task.

Interviews with an organization's past, current, and future personnel (i.e., the stakeholders) can also be used to identify an organization's functions. It is not uncommon for personnel to execute critical tasks and duties that are not explicitly stated in or required by doctrine. For example, in [1], we used joint doctrine, Marine Corps doctrine and guidance, and discussions with MARFORNORTH personnel to identify the key functions of the MARFORNORTH organization. If we had used joint doctrine alone, we would have identified only 21 of the 25 roles; if we had used only Marine Corps doctrine, we would have identified only 17 of the 25. In addition, interviews served to clarify 8 MARFORNORTH roles that we might have otherwise considered ancillary. In addition, interviews with personnel often serve as a "chop session," to scrub the results of a generic functional analysis that used only doctrine and similar sources. Sometimes such interviews are used to confirm whether a function spelled out in doctrine should really be included in a comprehensive list of functions [22]. Doctrine and similar sources may not take into account the realities of existing resources or other constraints. Interviews with personnel often allow an analyst to capture these points.

Gaining information from stakeholders, however, can also involve danger and controversy. The "data" gathered from personnel are

self-reported, and, as such, may be biased. This is not to say that the analyst should ignore the opinions of these personnel— they are often the ones who best know best what the organization should, will, or does do on a daily basis. Rather, the analyst should help compensate for any potential bias or subjectivity of such stakeholders: before engaging the organization's personnel, he or she should have an independent and detailed knowledge of the organization, its missions, its daily routine, and its potential role in a crisis. Armed with such knowledge, an analyst can view the self-reported information in context and ascribe the appropriate weight to it.

Finally, in analyzing military organizations, it is important to identify the organization's functions in all three environments (e.g., peacetime, wartime, and the transition between the two). In [16], this issue was critical, as Force Service Support Groups (FSSGs) were designed with peacetime garrison structures that were completely different from their wartime task-organized units. In this case, the analysts used a modified version of the functional approach by applying criteria to determine where and how functions could be most efficiently and effectively executed and by adding a process analysis element to identify potential organizational structures. Later in this report, we discuss how criteria and process analysis can be incorporated into more complex organizational analysis.

## **Determine gaps**

This step entails comparing the requirements identified in step one with actual activity within the command—that is, it compares what is supposed to happen with what actually happened or can happen. To continue with the MARFORNORTH example above, the author of [19] used a series of questions and a rating scheme to determine if the current organization and personnel could successfully execute a certain function. The questions focused on the role or function's frequency, required effort, importance, residence in current organization, and outlook, as well as whether the current organization was meeting expectations with respect to this function. The analyst used a scale or a Yes/No parameter (depending on the nature of the question) to assess each function. Ultimately, the study identified eight

MARFORNORTH roles as gaps, given their existing organizational structure and manning [19].

The questions and rating scheme were the basis of the decision matrix to determine whether there was a gap between what MARFORNORTH was supposed to do and what it actually did or could do. The use of such a tool highlights a critical challenge of this step. Organizational analysis can be very subjective, but still must have an analytical foundation to be credible. In [19], the analyst combined a formal analytical framework (i.e., the questions and rating scale) with more subjective data, to determine gaps. For example, the analyst might have had no hard data to point to when answering the question, "What amount of effort is required by MARFORNORTH to act as a communications conduit between the combatant commander and the service?" Rather, the analyst had to use her best understanding of how much time and effort it took the staff to act as this conduit. She used the frequency and depth of MARFORNORTH's operation summaries to USNORTHCOM to determine that it required a medium amount of effort (low in peacetime and high in times of crisis) [19].

This step is mainly used when analyzing an existing organization. When designing new organizations, the analyst instead focuses on building staff constructs and personnel tables that minimize gaps between what needs to get done and what can get done. For example, in [23], CNA proposes three organizational options for the Navy Warfare Development Command (NWDC) to consider. One option proposes the establishment of a completely new organization and command, the Navy Warfare Integration Command (NWIC), and includes a potential basic organizational structure that attempts to minimize gaps and shortfalls between what the Navy wants from this organization and what it can execute [23].

## **Design potential organizations**

Step three, the determination of potential organizational structures and manning, is simply a matter of designing alternative structures that fulfill the requirements identified in step one and close (or minimize) any gaps identified in step two. This step primarily depends on

two things: the functions identified in step one, and the flexibility of the sponsor. Its reliance on step one is obvious: the alternative organizations must be able to perform the required organizational functions to one degree or another. But, the sponsor's flexibility or open-mindedness is also key because it drives how creative an analyst can be in developing organizational structures. In most cases, CNA sponsors have asked us to develop new organizational structures, as well as consider existing Navy or Marine Corps structures [7, 9, 10]. This can quickly become overwhelming. In some cases, due to the nature and mission of an organization, a very large number of structures can be considered. In such cases, analysts usually limit the number of courses or actions, or potential organizational structures, to a reasonable number, by eliminating the alternatives that are either very costly or unrealistic, or are very similar to other structures being considered [9].

Based on previous CNA work, analysts usually consider three elements when developing potential structures or courses of action for military organizations:

- The degree of effort or support the organization will provide
- Geographic dispersion (or distributed operations)
- Napoleonic (traditional function-oriented) or non-Napoleonic (process-oriented) construct.

Again, potential organizational structures can vary, based on the degree to which they support the required functions; usually, the trade-off is personnel costs. For example, some organizational structures provide for every function to be executed at 100 percent effectiveness all of the time. Other organizational structures may have a flex or surge design, which allows for some functions to be only minimally executed in peacetime but provides for an augment capability in times of crisis. In several of our studies, we have varied our potential organizational structures by the degree to which some or all functions can be executed under each option (i.e., the degree of support) [1,9]. For example, in [9], course of action (COA) 1 proposed having a combined Navy and Marine Corps staff would perform service component functions for the Marines in theater, while COA 8 proposed

having a full component for each separate headquarters. In COA 1, the Marine Corps would not have a separate voice in the various theaters and its ability to advocate for itself could be limited. In COA 8, a separate three-star commander would lead a full staff to represent the Marine Corps in each theater to the highest degree.

In order to incorporate the second and third elements mentioned above (geographic dispersion, and Napoleonic versus non-Napoleonic construct) into our analysis of an organization, analysts can expand on the functional approach and incorporate a process-analysis element. We discuss this expanded approach and these elements later in this section.

## **Compare potential organizations**

The final step is to compare and contrast the potential organizational structures designed in step three. It is important that these comparisons highlight the costs, benefits, and risks associated with each course of action or alternative structure. Steps three and four often involve a trade-off. The larger the scope (or the breadth/number) of options identified in step three, the shallower the depth (or detailed consideration) of the comparisons in step four. If the scope is limited to a reasonable number of potential structures, the comparisons between them can likely include a more in-depth analysis that include developing tables of organization (T/Os) and equipment (T/Es), examining wartime augmentation requirements, and determining the specific rank, experience, and training required for each billet. If however, the scope is wide (i.e., the number of potential structures is large), the depth of the analysis will likely be sacrificed and the comparisons will probably be limited simply to the risks and costs associated with each option.

### **Functions**

Figure 3 and table 1 are examples of analyses used to compare alternative organizational structures. In figure 3, the number of options is rather large, so the analysis is limited to a simple scale that compares

the structures. In table 1, we consider only four potential structures so the comparisons are more detailed.

Figure 3. Example: Comparison of potential structures<sup>a</sup>

Assessment of courses of action for the EUCOM theater peacetime function

FACTORS TO CONSIDER	COURSES OF ACTION							
	1: USN to USN	#2: Centralized, no cell, no separate HQ	#3: Centralized, with cell, to centralized	#4: MEF, no cell, to MEF	#5: MEF, with cell, to separate HQ	#6: Designate, no cell, to separate HQ	#7: Designate, with cell, to separate HQ	#8: Full to separate HQ
<b>Peacetime functions</b>								
•Represent USMC interests	○	●	○	●	○	●	○	○
•Coordinate USMC plans/policies with								
-CINC	○	●	○	●	○	●	○	○
-Other components	○	●	○	●	○	●	○	○
-Warfighters	○	○	○	○	○	○	○	○
•Provide administrative/logistics support	○	○	○	○	○	○	○	○
•Participate in deliberate planning process								
- OPLANS and CONPLANS	○	●	○	○	○	○	○	○
- JOPES/TPFDD	○	●	○	○	○	○	○	○
- Supporting plans and annexes	●	●	○	○	○	○	○	○
•Participate in PPBS	●	●	○	●	○	●	○	○
•Coordinate training in AOR	○	●	○	○	○	○	○	○
•Implement CINC's guidance in admin, logistics, and training	○	●	○	●	○	●		○
•Develop MCAs and ISSAs	○	●	○	●	○	●	○	○
•Participate in working groups/committees	○	●	○	●	○	●	○	○

a. Source: [10].

Table 1. Example: Comparison of organizations' ability to mitigate of possible gaps <sup>a</sup>

Possible gaps	Gap <sup>b</sup>	Functional organization	Traditional organization	Reduced organization	Minimal organization
Antiterrorism and force protection	MC	Increased personnel to fully support all requirements	Increased personnel to fully support all requirements	Comparable personnel to partially support all requirements	Decreased personnel and discontinued program management to fully support only NC requirements
Theater security cooperation	NC	Added designated personnel to fully support all requirements	Added designated personnel to fully support all requirements	Retained personnel and designated as a shared responsibility to partially support all requirements	Retained personnel and designated as a shared responsibility to fully support only NC requirements
Marine emergency preparedness liaison	MC	Added designated personnel to fully support all requirements	Added designated personnel to fully support all requirements	Retained personnel and designated as a shared responsibility to partially support all requirements	Retained personnel and designated as a shared responsibility to fully support only NC requirements
Planning	NC	Increased personnel to fully support all requirements	Increased personnel to fully support all requirements	Retained personnel to partially support all requirements	Reduced personnel to fully support only NC requirements
Training and exercises	NC	Added designated personnel to fully support all requirements	Added designated personnel to fully support all requirements	Retained personnel and designated as a shared responsibility to partially support all requirements	Retained personnel and designated as a shared responsibility to fully support only NC requirements
Operations center	NC	Maintain continuously and indirectly mitigated by overall staff increases to fully support requirements	Maintained continuously and indirectly mitigated by overall staff increases to fully support requirements	Maintained only during a crisis and supplemented by MARFORRES or officer on call to partially support all requirements	Maintained during a crisis only with augmented personnel to partially support only NC requirements

a. Source: [1].

b. NC - This is a gap in meeting USNORTHCOM's expectations. MC - This is a gap in meeting the Marine Corps' expectations.

These examples may give the false impression that this step is relatively easy. To demonstrate the difficulty of using an analytical basis to compare functions that are qualitative, not quantitative, let us describe the framework used in assessing the COAs in figure 3. In [10], CNA assessed the courses of action based on their ability to satisfy the requirements dictated by the function (or factor) itself. For example, representing the Marine Corps' interests in theater in peacetime might be best accomplished through the full-time

presence of Marines in theater. Therefore, the critical element for this function is presence in theater. This is the type of subjective and qualitative call that will benefit greatly if the analyst has a deep understanding of what a service component really needs to do and how it can best do it. In this study, the analysts rated the COAs relative to one another using a stoplight chart. Therefore, with respect to Marine Corps interests, a COA that allows for the presence of Marines in theater full-time during peacetime is rated higher than one that does not allow for this presence. COA 1, which calls for a combined Navy and Marine Corps staff to represent component interests in peacetime is rated as fair, while COA 8, which calls for a three-star Marine commander and full-time Marine staff in theater, is rated as better (or high). At the end of the assessment, those COAs that best fulfill the most critical functions for each operating environment are recommended, as in [10].

### **Costs**

What these examples do not make obvious is that costs, both monetary and non-monetary, and resource availability are often key considerations in determining potential organizational structures. For example, while one alternative might provide for a broad and deep range of support and cover all functions fully, it might be infeasible if it is beyond the scope of the organization's budget for personnel and equipment. Another potential structure might be infeasible because the necessary type of personnel (who have the correct military occupational specialty and rank) are not available. Such challenges must be considered both when identifying potential structures and when comparing them.

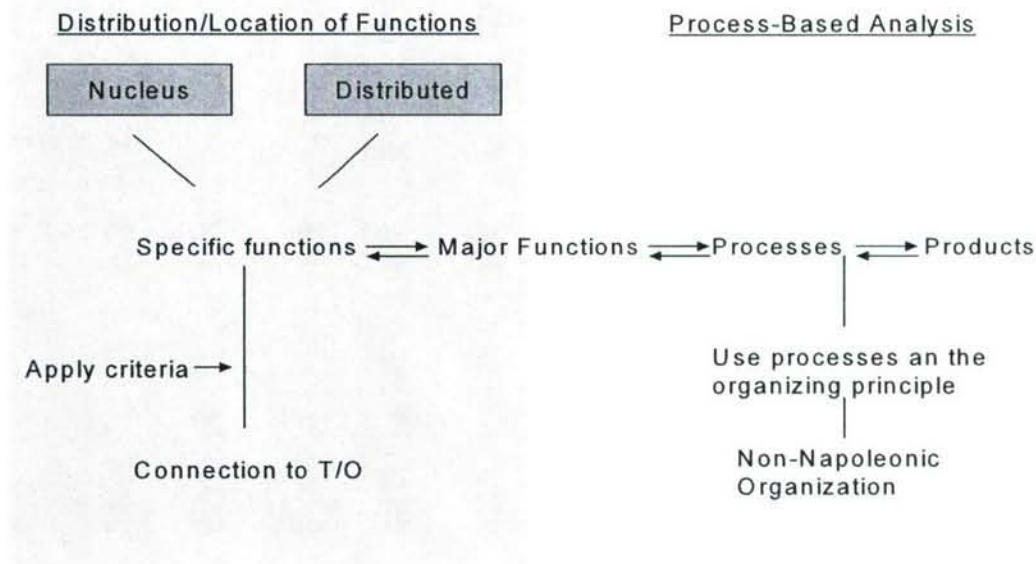
Finally, for the purposes of CNA's analyses of military organizations, effectiveness usually trumps efficiency. This is because if a military organization cannot perform its critical functions, especially in a time of crisis, the cost may be counted in terms of lives lost—and the Navy and Marine Corps are unwilling to pay such a cost.

## **Process-based analysis**

Processes are a series of steps designed to result in products or services. Functions can contribute to more than one process. Therefore,

another approach CNA sometimes uses when analyzing organizations is a process-based analysis. Figure 4 illustrates how we incorporate a process-analysis element into its functional approach to organizational analysis. We most frequently use this when we analyze more complex organizations that have either the potential or the requirement to be geographically dispersed (i.e., operate in two or more locations) and carry on distributed operations, and that are open to using a non-Napoleonic structure.

Figure 4. Expanded functional approach<sup>a</sup>



a. Source: Revised from [4].

## Geographic dispersion/distributed operations

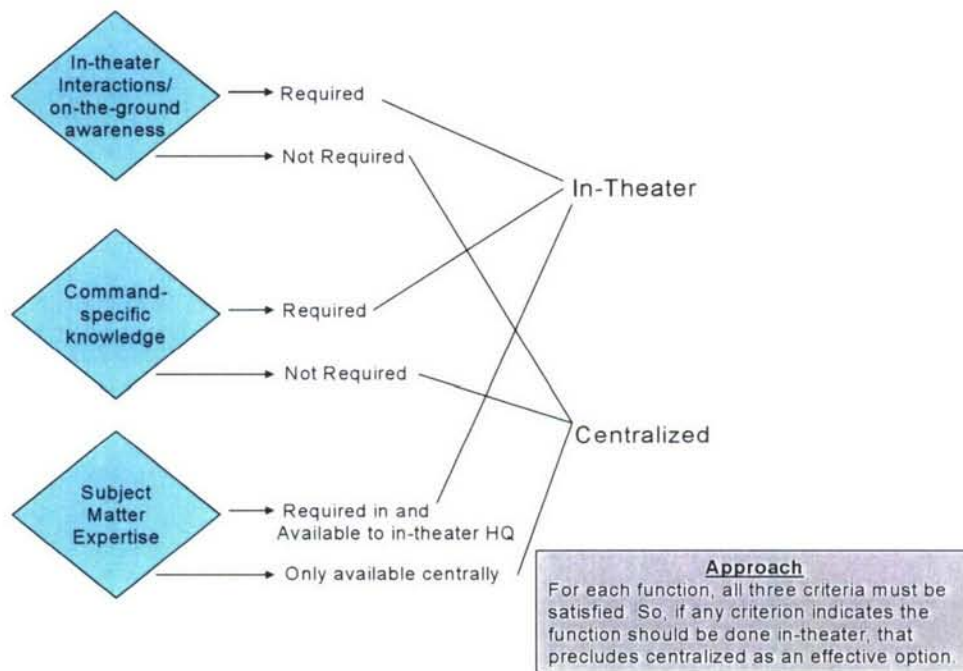
The left side of figure 4 shows how the functional or requirements-based approach is expanded in order to determine appropriate constructs for an organization that can or must have geographically distributed operations (e.g., MARCENT). This is shown by the use of both nucleus and distributed boxes as inputs to determining total specific functions. In such cases, a series of criteria are used to determine where at which location a specific function could be accomplished most efficiently and effectively. These criteria vary, based on the organization's specific functions and roles. We provide two examples of criteria that CNA has used in previous studies.

1. In [15], based on US Marine Forces Atlantic's (MARFORLANT's) role in Norfolk and Stuttgart, CNA applied three criteria to the specific functions or general role of MARFORLANT:
  - *In-theater interactions.* Does the function require in-theater actions or on-the-ground situation awareness? If so, the function must reside in the nucleus (or in-theater) staff.
  - *Command-specific knowledge.* Is an in-depth understanding of headquarters operating procedures required? If the function requires specific knowledge of the command to be performed, it requires a member of the staff (nucleus or distributed) to accomplish it.
  - *Subject matter expertise.* Does the in-theater headquarters need certain subject matter expertise, and is it available?
2. In [3-21], we used four criteria in distributing construct and personnel in a Marine Service component headquarters organization. In addition to in-theater interactions and command-specific knowledge, we also used:
  - *Connectivity.* Is continuous connectivity with the source of the information required, or is a short-term loss acceptable? If the organization cannot afford to lose touch at all, connectivity is required.

- *Timeliness.* Is the time horizon immediate (within an hour), soon (same day), or time-available (more than a day)?

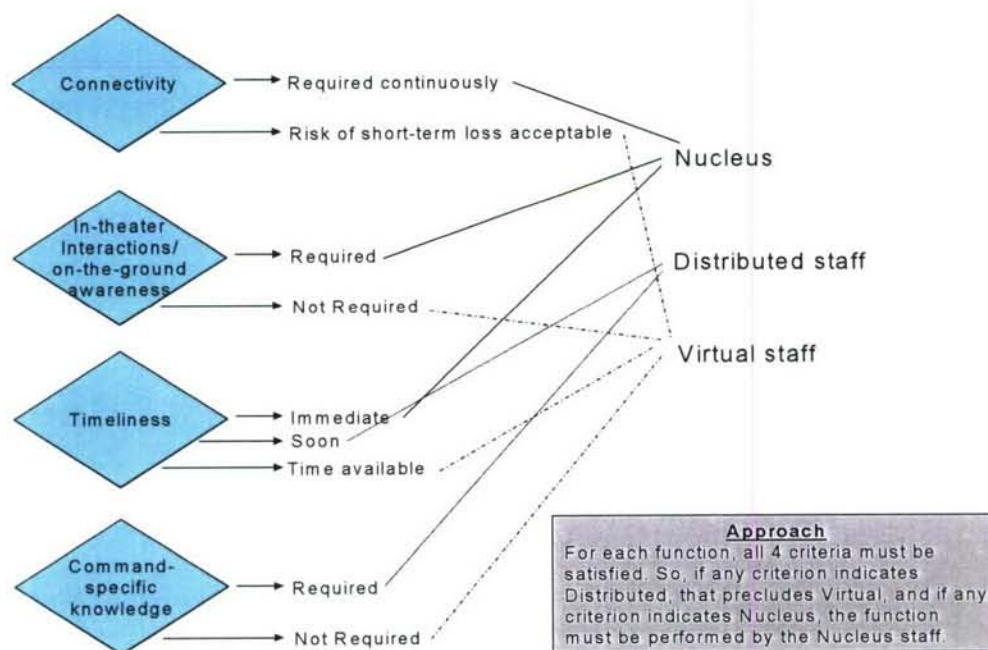
Figures 5 and 6 show how the criteria above were applied to the organizations in examples 1 and 2, respectively, to determine potential courses of action or potential organizational structures.

Figure 5. Example: Criteria for connecting functions to location<sup>a</sup>



a. Source: [15].

Figure 6. Example: Criteria for locating staff functions<sup>a</sup>



a. Source: [21].

Once functions are assigned to or associated with an “appropriate” location, the next step could be a review or development of suitable T/Os to construct the organization and its elements. However, an analyst might first consider what type of structure is most appropriate: Napoleonic or non-napoleonic.

### Napoleonic or non-Napoleonic construct

The right side of figure 4 illustrates how CNA incorporates process analysis in order to determine the line (function or process) along which the organization should be structured. Traditional military organizations are typically organized around numbered staff sections (G-sections), with each section focused on its own functional niche.

Such functionally based organizations tend to assign manpower based on the number and complexity of the functions within a given department. This reinforces stovepiped personnel and can inhibit cross-functional thinking and creativity [23-24]. In addition, staff sections tend to grow as a department matures [23].

On the other hand, organizations can also be organized around a process-oriented principle that focuses on end-products. Non-Napoleonic organizations are designed around the products required of a staff and the processes the staff uses to deliver these products, rather than around the expertise areas as traditional G-staff organization [21].

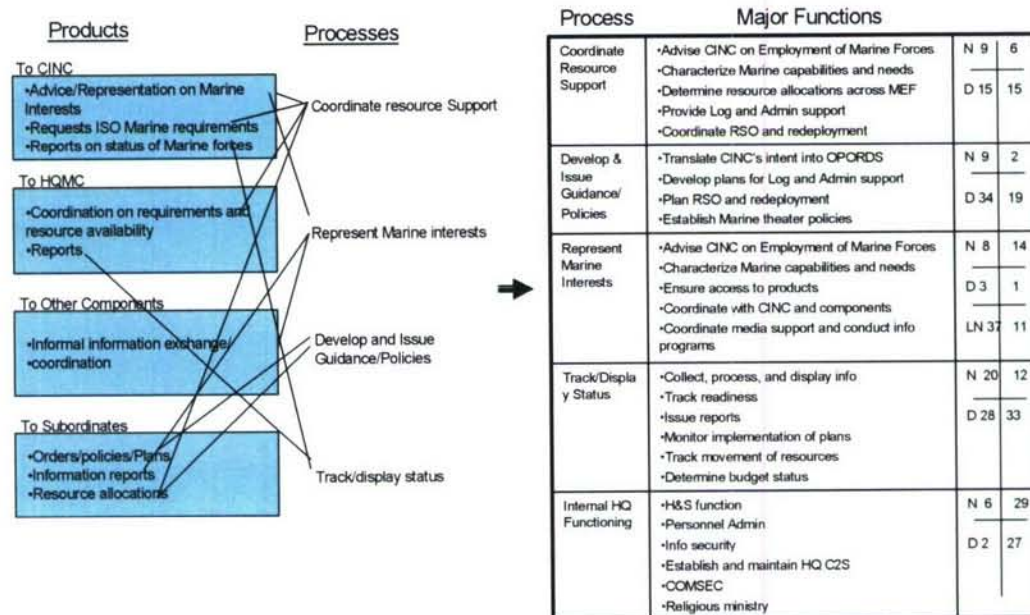
We define products as the service or result that is delivered, and processes as collections of activities that use functions (inputs) and create products (outputs). By organizing around these activities or processes, we eliminate stovepiped sections and gain a more synthesized result [4]. Previous CNA work indicates that there are two ways to do this [15, 20]:

1. Moving from specific functions, to major functions, to processes, to products
2. Doing the reverse (moving from products, to processes, to functions)

This is illustrated by the arrows going in both directions between functions and products in figure 4. Figure 7 shows how we used reverse process analysis (products, to processes, to functions) to examine potential non-Napoleonic component headquarters organizations in [21]. First, we identified outputs, or what service or product had to be provided by the organization. Second, we identified the processes that were or should have been used to develop these outputs. Third, we dissected the processes into their major functions, determining which functions enabled the execution and completion of the required processes. Finally, we identified the personnel breakdown that would/could accomplish these functions. This ultimately

led to the construction of a general T/O that the Marine Corps could use as a baseline for component headquarters organizations.

Figure 7. Example: Process analysis (products to functions)<sup>a</sup>



a. Source: [21].

We've presented two basic approaches to analyzing organizations: functions based and process analysis. Typically, the latter is an offshoot or expansion of the former. It is important to note, however, that our method of organizational analysis continues to evolve and be refined. As we have pointed out in this section, there are significant difficulties in examining organizations with critical analytical rigor. We continue to develop approaches and methodologies to overcome or compensate for them. In the next section, we discuss in greater detail the key challenges to organizational analysis.

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## Key challenges

Analyzing organizations is not simple. Unlike some other types of analysis, it has a subjective component. In most cases, there are few concrete data or facts upon which to base a critical examination. Instead, an analyst must draw heavily on subjective data and on his or her own understanding of the organization and its mission, purpose and role, in order to develop organizational constructs that can best (or better) serve the organization, and its parent, adjacent, and subordinate commands. Good organizational analysis often rests on developing and applying a critical thought process, or analytical framework, to information that does not easily lend itself to such action.

Throughout this report, we have highlighted the difficulties and obstacles that plague organizational analysis. In this section, we discuss, in greater detail, five key challenges that an analyst faces. Our goal is to summarize the considerations and pitfalls that an analyst should be aware of when analyzing an organization.

### Stakeholder Bias

Formal documents, such as doctrine, charters, and memorandums of agreement, can only go so far in providing insight into the true mission, role, and functions of an organization. In many cases, such documents present what its founders thought or expected an organization should or would do, and do not take into account real-world constraints (e.g., limited personnel available to staff the organization) or changes over time (e.g., the increased likelihood of an attack on US soil).

Interviews and discussions with an organization's personnel are a critical source of information on what the organization is expected to do and actually does. Unlike more traditional data sources, however, personnel have a stake in what happens to the organization. As such, the

“data” and information they give can be biased and misleading. For example, a supervisor might inflate (perhaps unconsciously) the number and complexity of the activities that his department performs, in order to maintain or increase his staff allotment.

Thus, on the one hand, an analyst might lose a critical information source if he or she does not tap personnel or is too quick to discredit what they say. On the other hand, if the analyst over-relies on self-reported information, he or she might reach the incorrect conclusion and predict a less than optimal organizational structure. The challenge is to develop an analytical framework that balances the value of the information with its veracity. One possibility is to independently verify the information through observation or third-party documentation (e.g., an after-action report written by an evaluator). But such opportunities are not often available. Ultimately, there is no sure way to overcome stakeholder bias. An analyst should simply be aware that it exists and try to counter its influence on the analysis.

## **Deep knowledge of the organization is critical**

Organizational analysis can be subjective and often lacks hard data to back up its conclusions. For example, there are numerous factors that determine whether an organization would benefit more from having a rotating liaison cell at a combatant command or having permanent staff stationed there. In the former option, it might lack the institutional knowledge that is gained by having personnel with two- or three-year assignments there. However, it might benefit from having personnel with more in-depth knowledge of events and developments outside that command. To make these determinations and to develop the decision rules that separate perception from reality (e.g., stakeholder bias), an analyst must have an in-depth understanding of what an organization needs to be doing. Unfortunately, it is often very difficult for an outsider to gain that understanding. One way that CNA counters this challenge is by involving field representatives when doing organizational analysis.

## **Remaining objective**

This challenge is directly related to the two previous challenges. We have already pointed out the potential issue of bias within the organization and its personnel. In addition, it is extremely difficult to remain the lone objective voice when working closely with a staff on a day to day basis. This is true whether the analyst is a field representative assigned to that staff or simply requires daily interaction with personnel to get information.

Along the same lines, an analyst may become so convinced that a certain result is best that he or she does not objectively evaluate its shortfalls. This is even more likely when much of the analysis is subjective. This challenge highlights the importance of having an analytic framework on which the analysis is based.

## **Functional lists don't always exist**

One might expect that when an organization is being established, a detailed list would be made, relating what the organization will do (i.e., its reason for existing). We have learned that this is not often the case. Even if such a list was made, it may be outdated and incomplete. This is understandable given that organizations, like people, may evolve and redefine themselves over time.

The absence of a good starting point, such as a list of an organization's activities, may be a problem for an analyst. It will essentially require the analyst to formally define an organization's activities for it. This is particularly difficult if the analyst is not intimately familiar with the organization and its place among its parent, adjacent and subordinate organizations. In addition, it often requires an extensive amount of time and effort that might be better used developing and refining an analytic framework.

## **No one right answer**

Organizational analysis is not like mathematics: there is no one right answer. The analysts must rely heavily on subjective data and intuition to be certain that an organization is structured the best way possible.

Instead, the analysts seek to determine those structures that best meet the requirements and demands facing an organization. This is one reason why CNA typically presents several recommended options and carefully weighs and documents the pros and cons of each. No single construct will be perfect; each will have its shortcomings. We can only analyze and present the alternatives in a way that enables the sponsor to make a meaningful, informed, and objective comparison of the alternatives.

In the next section we summarize our findings and present our final thoughts on organizational analysis.

## Conclusion

The objective of this paper is to lay out in detail the approach CNA uses to analyze organizations, specifically the structure and manning of military organizations. Over the past 15 years, we have primarily used a functions-based approach to analyze organizations. We describe that functional methodology in this paper but only in general terms. In practice, each study is unique and the actual application of this methodology varies from one to the next. For example, as we discussed, in some studies we incorporate process analysis into the functions-based approach in order to address more complex issues. We expect our approach and methodology for these types of studies to continue to evolve as we develop better analytical frameworks and tools.

## Summary

In short, the functions-based approach has four steps [1]:

1. Identify the functions, tasks, roles, and missions (i.e., the requirements) of the organization.
2. Determine the gaps between these requirements and what the current or proposed organizational structure actually does.
3. Design potential organizational structures that minimize any gaps from step two.
4. Analyze the risks and trade-offs associated with each potential structure.

While this approach may seem simple, it can quickly get complex. For example, step one entails more than just reviewing doctrine. To truly understand what an organization (and its personnel) must do, an analyst must interview personnel; review after-action reports, exercise reports, and lessons learned; and consider how future operational

requirements may affect the organization. When using personnel as a data source, an analyst must expect and compensate for bias inherent in self-reported information (i.e., stakeholder bias). In addition, this step may also be complicated by the fact that some military organizations will serve more than one role (e.g., the same organization serves as both Fifth Fleet and NAVCENT), so the analyst must identify the organization's requirements for each of these roles. And, in almost all cases, the analyst will need to consider an organization's requirements in peacetime, in wartime, and during the transition between the two.

Steps three and four can also challenge an analyst because in some cases the potential organizational constructs can be numerous. At this point, an analyst must strike a balance between the breadth of organizations in step three and the depth of the analysis of each potential structure in step four. These two steps are further complicated by time constraints (i.e., the organization needs to be established or revised in a short timeframe) and limited resources (e.g., lack of money and personnel with the appropriate rank or military operational specialty (MOS)). These two constraints (money and personnel) are becoming more important as the military budgets and T/Os are stretched very thin.

The functions-based approach is very useful; however, even when the above caveats are incorporated the approach has limited utility when analysts are considering more complex organizations. Therefore, CNA analysts have expanded upon it and incorporated process analysis to address two common questions we have had to consider: distributed operations and Napoleonic versus non-Napoleonic structure [2]. When considering these two elements, or possibilities, we have found that tracing functions through to the processes and resulting products is an effective way to identify potential organizational structures. In many cases, we do the reverse—i.e., we start by identifying products and trace back to the processes that resulted in them and the functions that collectively made up the process. Once these are identified, it tends to become evident whether a Napoleonic or non-Napoleonic structure is more appropriate. The process analysis also serves to help determine where (i.e., in which location if distributed operations are required or are possible) a function should reside.

As evidenced in this report, organizational analysis is complex. Throughout this report we have highlighted the challenges of bias, lack of data, and subjectivity. In general, we can categorize the key challenges into five categories: stakeholder bias, the requirement for the analyst to have a deep understanding of the organization, the requirement for the analyst to remain objective, the lack of data (e.g., comprehensive function lists rarely exist), and the fact that there is no one right answer. These challenges point to the fact that organizational analysis heavily depends on the analyst's intuition, qualitative and subjective assessments, and familiarity with the organization. What may at first seem to be an easy four-step functional approach or quick process analysis, is actually a complex methodology built to provide an analytic foundation for a subject that does not easily lend itself to analysis.

## **Our goal**

Ultimately, the goal of any organizational analysis is to achieve “organization operational excellence,” or to get the most done with the fewest resources. The end-state is to be as effective as possible while also being as efficient as possible. Determining the balance between effectiveness and efficiency is a large part of such analysis. When it comes to military organizations, effectiveness usually trumps efficiency because the people's lives and the nation's security is at stake. That is not to say that we design potential organizations to be able to do every task or function at the highest level all of the time—the cost of such structures would likely be prohibitive and unreasonable. Rather, when designing alternative structures, analyzing the costs and trade-offs between them, and making recommendations, we favor those structures that best meet requirements (i.e., effectiveness) even if additional resources are needed.

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